

**AWAPATENT**Handled by
Sören Giver/UAHelsingborg
26 June 1997Our ref.
2950767Attention
DG 2

REGISTERED MAIL

EUROPEAN PATENT OFFICE
D-80298 MÜNCHEN

European Patent Application No 94915725.9-2303
in the name of VÄLINGE ALUMINIUM AB

Dear Sirs,

This is in response to your Communication pursuant to Article 96(2) EPC.

It is hereby confirmed that the claim feature relating to the mutual displacement of the panels *in the direction of the joint edges* is an intended limitation. This is an essential feature of the invention, representing an important functional difference between prior-art panel connections using glue or spring clips. Contrary to the present invention, these two conventional connection types do not allow for any mutual displacement of the panels in the direction of the joint edges.

The mutual displacement of the panels in the direction of the joint edges is essential, because it makes it possible to mechanically connect not only e.g. the long edges of the panels, but also the short edges. Thus, as described in the application, when a new panel is to be connected, this is essentially performed in a two-step operation. The first step consists of connecting the new panel at its long edge to the long edge of an adjacent panel already assembled on the floor in a neighbouring row. As illustrated in the drawings, this first step can be performed by first positioning the new panel adjacent to the panel on the floor, while holding the

HELSINGBORG	VAT No. SE556082702301	Other AWA offices:	
STREET ADDRESS:	POSTAL ADDRESS:	Telephone	MALMÖ (Head office and registered office)
Berga allé 1	Berga allé 1	Fax	STOCKHOLM
HELSINGBORG	S-254 52 HELSINGBORG	Telex	SÖDERHAMN
SWEDEN	SWEDEN	Email	LIDKÖPING
			ÖSTERSUND
			GÖTEBORG
			VÄXJÖ
			VARBERG
			LUND

new panel inclined upwards. Then, the new panel is turned downwards into contact with the floor. The first step of the two-step operation is then completed. The second step of the operation consists of mechanically connecting one end edge of the new panel with an adjacent end edge of a previously laid panel in the same row. This is done by displacing the new panel along its long edge, in relation to the adjacent panel in the neighbouring row. Thereby, the two end edges can be brought together and be mechanically connected to each other as disclosed in the application. Accordingly, the mutual displacement of the panels in the direction of the joint edges is an essential feature of the invention and makes it possible to perform the above second step of the assembly operation.

However, the limitation in the preceding paragraph of claim 1 - that the panels, when joined together, can occupy a relative position in said second direction where a play exists between the locking groove and the locking surface of the locking element - was introduced into claim 1 mainly in order to distinguish the invention from prior-art spring clips, where the spring clips are biased towards the panel material in grooves provided in the lower side of the panels. The prosecution of the present application clearly indicating that the combination of the remaining features in claim 1 is both novel and inventive over the prior art, it is hereby requested, as a primary request, that the application be granted based on the enclosed new claims 1-20 with the heading "New claims - primary request". Claim 1 according to the primary request does not comprise the above limitation regarding the play. It is submitted that this amendment does not contravene Article 123(2) EPC.

As a secondary request, in case the claims according to the primary request cannot be granted, the claims should be amended in accordance with the enclosed amended claims 1-20 with the heading "New claims - secondary request".

In the new claims, according to the primary as well as the secondary request, a new claim 14 has been introduced, dependent from any one of claims 1-4. According to new claim 14, the strip is *integrally formed* with the strip panel, i.e. made in one piece with the strip panel. This embodiment according to new claim 14 is disclosed in fig. 5 and is an alternative to the embodiment according to claim 5, wherein the strip is made of a material different from that of the strip panel and fixedly mounted on the strip panel at the factory. The support for new claim 14 can be found in the application on page 12, lines 23 and 24 ("alternatively, the strip 6 may be integrally formed with the strip panel 1") and on page 17, line 34 to page 18, line 2

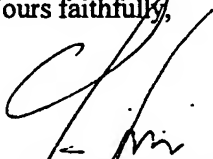


("in the embodiment of fig 5, the strip 6 and its locking element 8 are integrally formed with the strip panel 1, the projecting part of the strip 6 thus forming an extension of the lower part of the joint edge 3"). The cross-section of the embodiment disclosed in fig 5 clearly indicates that the strip 6 is made in one piece with the panel 1. |

Moreover, new claims 10 and 11 according to the primary and secondary requests have been corrected, such that these claims now correctly are dependent from claim 9 instead of claim 6. Claims 10 and 11 are directed to limitations on a mechanical connection defined in claim 9.

Referring to our letter of 10 March 1997, an accelerated processing of the application under the PACE-program is hereby respectfully requested.

Yours faithfully,



Authorised Representative
AWAPATENT AB
Sören Giver

Encls

New claims 1-20 according to the primary request, in triplicate

New claims 1-20 according to the secondary request, in triplicate

NEW CLAIMS - PRIMARY REQUEST

1. A system for providing a joint along adjacent
5 joint edges (3, 4) of two building panels (1, 2), especially floor panels, in which joint:

the adjacent joint edges (3, 4) together form a first mechanical connection locking the joint edges (3, 4) to each other in a first direction (D1) at right angles to the principal plane of the panels (1, 2), and
10 a locking device (6, 8, 14) arranged on the rear side (18, 16) of the panels (1, 2) forms a second mechanical connection locking the panels (1, 2) to each other in a second direction (D2) parallel to the principal
15 plane and at right angles to the joint edges (3, 4), said locking device (6, 8, 14) comprising a locking groove (14) which extends parallel to and spaced from the joint edge (4) of one (2) of said panels, termed groove panel, and which is open at the rear side (16) of the groove
20 panel (2), characterized in

that the locking device (6, 8, 14) further comprises a strip (6) integrated with the other (1) of said panels, termed strip panel, said strip (6) extending throughout substantially the entire length of the joint edge (3) of
25 the strip panel (1) and being provided with a locking element (8) projecting from the strip, such that when the panels are joined together, the strip (6) projects on the rear side of the groove panel (2) with its locking element (8) received in the locking groove (14) of the
30 groove panel (2),

that the first and the second mechanical connection both allow mutual displacement of the panels (1, 2) in the direction of the joint edges (3, 4), and

that the second mechanical connection is so conceived as to allow the locking element (8) to leave the lock-
35

ing groove (14) if the groove panel (2) is turned about its joint edge (4) angularly away from the strip (6).

2. A system as claimed in claim 1, characterised in that when the groove panel (2) is pressed against the strip panel (1) in said second direction (D2) and is turned angularly away from the strip (6), the maximum distance between the axis of rotation of the groove panel (2) and the locking surface of the locking groove (14) closest to the joint edges is such that the locking element (8) can leave the locking groove (14) without contacting the locking surface of the locking groove (14).

3. A system as claimed in claim 1 or 2, characterised in that the locking surface (10) of the locking element (8) is extended from the front side (22) of the strip (6) through a height in said first direction that is less than or equal to 2 mm.

4. A system as claimed in any one of the preceding claims, characterised in that the first mechanical connection is provided by the joint edge (4) of the groove panel (2) engaging, in said first direction, between the joint edge (3) of the strip panel (1) and the front side of the strip (6).

5. A system as claimed in any one of the preceding claims, characterised in that the strip (6) integrated with the strip panel (1) is made of a material different from that of the strip panel (1) and fixedly mounted on the strip panel (1) at the factory.

6. A system as claimed in claim 5, characterised in that the strip (6), at least for one of the two panels (1, 2), is received in a countersunk groove (40; 42) in the rear side (18; 16) of this one panel (1; 2).

7. A system as claimed in claim 5 or 6, characterised in that the strip (6) is mounted in an equalising groove (40) which is countersunk in the rear side (18) of

the strip panel (1) and exhibits an exact, predetermined distance (E) from its bottom to the front side (21) of the strip panel (1);

5 that the part of the strip (6) projecting behind the groove panel (2) engages a corresponding equalising groove (42) which is countersunk in the rear side (16) of the groove panel (2) and which exhibits the same exact, predetermined distance (E) from its bottom to the front side (26) of the groove panel (2), and

10 that the strip (6) has at least such a thickness that the rear side (44) of the strip is flush with the rear sides (18, 16) of the panels.

8. A system as claimed in claim 7, c h a r a c -
t e r i s e d in that the strip (6) has such a thickness
15 that it is only partly received in the equalising grooves (40, 42).

9. A system as claimed in any one of claims 5-8,
c h a r a c t e r i s e d in that the strip (6) is fixed
20 to the strip panel (1) by means of a mechanical connection.

10. A system as claimed in claim 9, c h a r a c -
t e r i s e d in that the mechanical connection between the strip (6) and the strip panel (1) comprises a gripping edge (52) defined by two recesses (24, 50) in the
25 rear side (18) of the strip panel, and tongues, lips or the like (54, 56) which are bent or punched from the strip (6) and which press against opposite outer sides of the gripping edge (52).

11. A system as claimed in claim 9, c h a r a c -
30 t e r i s e d in that the mechanical connection between the strip (6) and the strip panel (1) comprises a recess (58) in the rear side (18) of the strip panel, and tongues, lips or the like (60) which are bent or punched from the strip (6) and which press against opposing inner
35 sides of the recess (58).

12. A system as claimed in any one of claims 5-11, characterised in that the strip (6) is fixed to the strip panel (1) by means of a binder.

13. A system as claimed in any one of claims 5-12, characterised in that the strip (6) is made of a flexible, preferably resilient material, such as sheet aluminium.

14. A system as claimed in any one of claims 1-4, characterised in that the strip (6) is integrally formed with the strip panel (1), i.e. made in one piece with the strip panel (1).

15. A system as claimed in any one of the preceding claims, characterised in that the locking element (8) consists of a locking edge extended continuously along the strip (6).

16. A system as claimed in any one of claims 1-14, characterised in that the locking element (8) consists of a plurality of spaced-apart locking elements distributed throughout the length of the strip (6).

17. A system as claimed in any one of the preceding claims, characterised in that the panels (1, 2) are rectangular and intended, at each of their four edges (3, 4, 3', 4'), to be joined to a similar panel by a first mechanical connection of the aforementioned type and a second mechanical connection of the aforementioned type, each panel having a first pair of opposite joint edges (3, 4), one of which is provided with a strip (6) of the aforementioned type and the other of which is provided with a locking groove (14) of the aforementioned type, and a second pair of opposite joint edges (3', 4'), one of which is provided with a strip (6') of the aforementioned type and the other of which is provided with a locking groove (14') of the aforementioned type.

18. A system as claimed in any one of the preceding claims, characterised in that an underlay (46) of floor boards, foam, felt or the like is fixed to the rear sides (18, 16) of the panels.

19. A system as claimed in claim 18, c h a r a c -
t e r i s e d in that the underlay (46) is fixed so as to
cover the strip (6) in said second direction at least up
to the locking element (8), such that a joint between the
5 underlays (46) of the two adjacent panels is offset in
said second direction relative to the joint edges (3, 4).

20. A system as claimed in any one of the preceding
claims, c h a r a c t e r i s e d in that a sealing
means, such as a sealing compound, a rubber strip or the
10 like, is provided on the front side (22) of the strip be-
tween the locking element (8) and the joint edge (3)
of the strip panel to seal against the groove panel (2).

~~NEW CLAIMS SECONDARY REQUEST~~

1. A system for providing a joint along adjacent
5 joint edges (3, 4) of two building panels (1, 2), especially floor panels, in which joint:

the adjacent joint edges (3, 4) together form a first mechanical connection locking the joint edges (3, 4) to each other in a first direction (D1) at right angles to the principal plane of the panels (1, 2), and
10 a locking device (6, 8, 14) arranged on the rear side (18, 16) of the panels (1, 2) forms a second mechanical connection locking the panels (1, 2) to each other in a second direction (D2) parallel to the principal plane and at right angles to the joint edges (3, 4), said
15 locking device (6, 8, 14) comprising a locking groove (14) which extends parallel to and spaced from the joint edge (4) of one (2) of said panels, termed groove panel, and which is open at the rear side (16) of the groove
20 panel (2), c h a r a c t e r i s e d i n

that the locking device (6, 8, 14) further comprises a strip (6) integrated with the other (1) of said panels, termed strip panel, said strip (6) extending throughout substantially the entire length of the joint edge (3) of
25 the strip panel (1) and being provided with a locking element (8) projecting from the strip, such that when the panels are joined together, the strip (6) projects on the rear side of the groove panel (2) with its locking element (8) received in the locking groove (14) of the
30 groove panel (2),

that the panels, when joined together, can occupy a relative position in said second direction (D2) where a play (Δ) exists between the locking groove (14) and a locking surface (10) on the locking element (8) that is
35 facing the joint edges and is operative in said second mechanical connection,

that the first and the second mechanical connection both allow mutual displacement of the panels (1, 2) in the direction of the joint edges (3, 4), and

that the second mechanical connection is so conceived as to allow the locking element (8) to leave the locking groove (14) if the groove panel (2) is turned about its joint edge (4) angularly away from the strip (6).

2. A system as claimed in claim 1, characterised in that when the groove panel (2) is pressed against the strip panel (1) in said second direction (D2) and is turned angularly away from the strip (6), the maximum distance between the axis of rotation of the groove panel (2) and the locking surface of the locking groove (14) closest to the joint edges is such that the locking element (8) can leave the locking groove (14) without contacting the locking surface of the locking groove (14).

3. A system as claimed in claim 1 or 2, characterised in that the locking surface (10) of the locking element (8) is extended from the front side (22) of the strip (6) through a height in said first direction that is less than or equal to 2 mm.

4. A system as claimed in any one of the preceding claims, characterised in that the first mechanical connection is provided by the joint edge (4) of the groove panel (2) engaging, in said first direction, between the joint edge (3) of the strip panel (1) and the front side of the strip (6).

5. A system as claimed in any one of the preceding claims, characterised in that the strip (6) integrated with the strip panel (1) is made of a material different from that of the strip panel (1) and fixedly mounted on the strip panel (1) at the factory.

6. A system as claimed in claim 5, characterised in that the strip (6), at least for one of the two panels (1, 2), is received in a countersunk

groove (40; 42) in the rear side (18; 16) of this one panel (1; 2).

7. A system as claimed in claim 5 or 6, c h a r -
a c t e r i s e d i n

5 that the strip (6) is mounted in an equalising
groove (40) which is countersunk in the rear side (18) of
the strip panel (1) and exhibits an exact, predetermined
distance (E) from its bottom to the front side (21) of
the strip panel (1),

10 that the part of the strip (6) projecting behind the
groove panel (2) engages a corresponding equalising
groove (42) which is countersunk in the rear side (16) of
the groove panel (2) and which exhibits the same exact,
predetermined distance (E) from its bottom to the front
15 side (26) of the groove panel (2), and

 that the strip (6) has at least such a thickness
that the rear side (44) of the strip is flush with the
rear sides (18, 16) of the panels.

8. A system as claimed in claim 7, c h a r a c -
20 t e r i s e d i n that the strip (6) has such a thickness
that it is only partly received in the equalising grooves
(40, 42).

9. A system as claimed in any one of claims 5-8,
c h a r a c t e r i s e d i n that the strip (6) is fixed
25 to the strip panel (1) by means of a mechanical connec-
tion.

10. A system as claimed in claim 9, c h a r a c -
t e r i s e d i n that the mechanical connection between
the strip (6) and the strip panel (1) comprises a grip-
30 ping edge (52) defined by two recesses (24, 50) in the
rear side (18) of the strip panel, and tongues, lips or
the like (54, 56) which are bent or punched from the
strip (6) and which press against opposite outer sides of
the gripping edge (52).

35 11. A system as claimed in claim 9, c h a r a c -
t e r i s e d i n that the mechanical connection between
the strip (6) and the strip panel (1) comprises a recess

(58) in the rear side (18) of the strip panel, and tongues, lips or the like (60) which are bent or punched from the strip (6) and which press against opposing inner sides of the recess (58).

5 12. A system as claimed in any one of claims 5-11, characterised in that the strip (6) is fixed to the strip panel (1) by means of a binder.

10 13. A system as claimed in any one of claims 5-12, characterised in that the strip (6) is made of a flexible, preferably resilient material, such as sheet aluminium.

15 14. A system as claimed in any one of claims 1-4, characterised in that the strip (6) is integrally formed with the strip panel (1), i.e. made in one piece with the strip panel (1).

15 15. A system as claimed in any one of the preceding claims, characterised in that the locking element (8) consists of a locking edge extended continuously along the strip (6).

20 16. A system as claimed in any one of claims 1-14, characterised in that the locking element (8) consists of a plurality of spaced-apart locking elements distributed throughout the length of the strip (6).

25 17. A system as claimed in any one of the preceding claims, characterised in that the panels (1, 2) are rectangular and intended, at each of their four edges (3, 4, 3', 4'), to be joined to a similar panel by a first mechanical connection of the aforementioned type and a second mechanical connection of the aforementioned type, each panel having a first pair of opposite joint edges (3, 4), one of which is provided with a strip (6) of the aforementioned type and the other of which is provided with a locking groove (14) of the aforementioned type, and a second pair of opposite joint edges (3', 4'),
30 one of which is provided with a strip (6') of the aforementioned type and the other of which is provided with a locking groove (14') of the aforementioned type.
35

18. A system as claimed in any one of the preceding claims, characterised in that an underlay (46) of floor boards, foam, felt or the like is fixed to the rear sides (18, 16) of the panels.

5 19. A system as claimed in claim 18, characterised in that the underlay (46) is fixed so as to cover the strip (6) in said second direction at least up to the locking element (8), such that a joint between the underlays (46) of the two adjacent panels is offset in
10 said second direction relative to the joint edges (3, 4).

20. A system as claimed in any one of the preceding claims, characterised in that a sealing means, such as a sealing compound, a rubber strip or the like, is provided on the front side (22) of the strip between the locking element (8) and the joint edge (3)
15 of the strip panel to seal against the groove panel (2).